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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/544,742 | 04/07/2000 | Alex Kuperman | 44251 | 2331 |

109 7590 08/07/2002

THE DOW CHEMICAL COMPANY
INTELLECTUAL PROPERTY SECTION
P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

JOHNSON, EDWARD M

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1754

DATE MAILED: 08/07/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/544,742

Applicant(s)

KUPERMAN ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16 and 18-32 is/are rejected.
- 7) ☒ Claim(s) 15 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9 and 18-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta et al. 5,051,394 in view of Iwakura et al. 5,502,020 (already made of record).

Regarding claim 1, Haruta '394 discloses a method for production of ultra-fine gold oxides comprising adding a gold compound with carboxylic acid (see column 3, lines 14-18) and a reducing agent (see column 1, lines 64-65), using a titanium oxide carrier (see column 8, lines 30-32).

Haruta '394 fails to specifically disclose impregnation.

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Iwakura '020 discloses impregnation of a titania carrier (see column 2, lines 37-39 and column 3, lines 37-41).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the impregnation of Iwakura in the gold catalyst of Haruta because Iawkura discloses his impregnation in a process for making a gold catalyst (see abstract and column 3, lines 12-13) to make improved highly selective catalysts with long-life (see column 1, lines 18-20) and to maintain strength (see column 3, lines 40-41) and also because of Applicant's repeated admission that impregnation is well known technique in the catalyst art.

Regarding claim 2, Haruta '394 discloses chloroauric acid, sodium chloroaurate, gold cyanide, potassium gold cyanide, and diethylamineauric acid trichloride (see column 4, lines 46-51).

Regarding claim 3, Haruta '394 discloses atomic ratio of $\text{Au/Ti} = 1/19$ (see column 9, lines 3-4).

Regarding claim 4, Haruta '394 discloses reduction with carboxylic acid (see column 6, lines 27-30).

Regarding claims 5-7, Haruta '394 discloses carboxylic acids and salts thereof (see column 5, lines 38-56).

Regarding claim 8, Haruta '394 discloses at least 1 mol per mol (see column 5, lines 57-61).

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Regarding claim 9, Haruta '394 discloses mixing citric acid solution with the coprecipitate (see column 8, lines 61-67).

Regarding claim 18, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 20, Haruta '394 discloses 0.05 mol titanium sulfate (see Example 1), and atomic ratio of Au/Ti = 1/19 (see column 9, lines 3-4).

Regarding claims 22-23, Haruta '394 discloses adding an alkali compound to the metal salt (see abstract).

Regarding claim 24, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 25, Haruta '394 discloses dissolving in magnesium citrate solution (see Example 1).

Regarding claim 26, Haruta '394 discloses thorough washing (see column 9, line 1).

Regarding claim 27, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 29, Haruta '394 discloses 20-90 degrees Celsius (see column 6, lines 64-68).

Regarding claim 30-32, Haruta '394 discloses drying and firing in air at 400 degrees Celsius (see column 9, lines 1-2).

Regarding claims 10 and 21, it is considered that it would have been obvious to one of ordinary skill in the art at the

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time the invention was made to use a titanium salt as reducing agent because Haruta '394 discloses using titanium both as salts in gold compounds and support material (see column 4, lines 52-58 and column 8, lines 30-32), and Haruta also discloses reducing agents comprising carboxylic acids and salts thereof, giving examples of various transition metals (see column 5, lines 38-56).

Regarding claims 11-14, Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

Regarding claim 17, Haruta '394 discloses the ratio of $\text{Au/Ti} = 1/19$ and 400 ml of 6.0 g/liter metal citrate solution (see Example 1).

Regarding claim 19, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 28, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct impregnation to the point of incipient wetness or less because Haruta '394 discloses impregnation with solution precipitation and also in view of

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Applicant's admission that such techniques are known in the art (Specification, page 7, first full paragraph).

4. Claims 10-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta '394 in view of Iwakura '020 as applied to claim 1 above, and further in view of Hirose et al. 5,532,030.

Regarding claims 10-14, Hirose '030 discloses a hydrogenation product catalyst comprising a reducing agent or an acetylacetonate of a titan salt, (see column 26, lines 30-38).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the titan acetylacetonate of Hirose as reducing agent in the catalyst composition of Haruta because Hirose discloses his acetylacetone for use in a catalyst (see column 26, line 31) with reducing agent (see column 26, line 35), and Haruta discloses reduction with various organometallic salts (see column 5, lines 38-56).

Allowable Subject Matter

5. Claims 15 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: It would not have been obvious to one of ordinary skill in the art at the time the invention was made to use the titanyl acetylacetonate of Hirose in the process of Haruta, nor would it have been obvious to use the percentage of titanium of the instant claim 17.

Response to Arguments

6. Applicant's arguments are considered moot in view of the new ground of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ

August 6, 2002



Stanley S. Silverman
Supervisory Patent Examiner
Technology Center 1700